



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,870	12/21/2001	Francis Briand	S 5132	4676
466	7590	11/17/2003		
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			EXAMINER SHAW, CLIFFORD C	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Interview Summary</b>	Application No.	Applicant(s)	
	10/023,870	BRIAND ET AL.	
	Examiner	Art Unit	
	Clifford C Shaw	1725	

All participants (applicant, applicant's representative, PTO personnel):

(1) Ex. Clifford C Shaw. (3) \_\_\_\_\_

(2) Mr. Castel (applicant's representative). (4) \_\_\_\_\_

Date of Interview: 04 November 2003.

Type: a) ☐ Telephonic b) ☐ Video Conference  
c) ☒ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.  
If Yes, brief description: \_\_\_\_\_

Claim(s) discussed: \_\_\_\_\_

Identification of prior art discussed: \_\_\_\_\_


Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

#### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2. Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Ex. Shaw said that the newlypresented claim 15 distinguished over the prior art of record. This claim clarifies that the equations for mean current and rms current must be solved as a step in the overall process of the claim. In regard to apparatus claim 27, Examiner Shaw indicated that he would interpret this claim as requiring separate structural elements for the adjustment of mean current and rms current respectively. Ex. Shaw said that upon cancellation of claims 1-14, the new claims 15-28 (copy attached) would be allowed.

Attachment to  
Interview Summary 11/4/03  
Proposed claims presented at 11/4/03 interview:

15. (new) Process for the arc welding in pulsed mode of one or more workpieces made of carbon steel, stainless steel, aluminum or aluminum alloy, with the use of a gas shield, in which an electric arc welding torch is supplied with at least one consumable wire at a wire feed speed ( $V_{wire}$ ) and the consumable wire is subjected to current pulses, in order to melt the end of the consumable wire and to detach a drop of molten metal by a current impulse, and in which, for a given pulse frequency, a wire feed speed ( $V_{wire}$ ), a mean current ( $I_{mean}$ ) value and an rms current ( $I_{rms}$ ) value such that:

$$I_{mean} = A_1 V_{wire} + B_1, \text{ where } 5 < A_1 < 45 \text{ and } 0 < B_1 < 50 \text{ and}$$
$$I_{rms} = A_2 V_{wire} + B_2, \text{ where } 5 < A_2 < 45 \text{ and } 40 < B_2 < 100,$$

where  $I_{mean}$  and  $I_{rms}$  are expressed in amps and  $V_{wire}$  is expressed in m/min, are chosen, and wherein:

the wire feed speed ( $V_{wire}$ ) is between 1 and 20 m/min;

the pulse frequency is between 20 and 300 Hz; and

the ratio ( $I_{rms}/I_{mean}$ ) of the rms current ( $I_{rms}$ ) value to the mean current ( $I_{mean}$ ) value is between 1.05 and 2.

16. (new) Process according to Claim 15, wherein the workpiece or workpieces to be welded are made of carbon steel and the mean current ( $I_{mean}$ ) value and the rms current ( $I_{rms}$ ) value, such that:

$I_{\text{mean}} = A_1 V_{\text{wire}} + B_1$ , where  $20 < A_1 < 40$  and  $0 < B_1 < 30$  and  
 $I_{\text{rms}} = A_2 V_{\text{wire}} + B_2$ , where  $19 < A_2 < 39$  and  $40 < B_2 < 100$ ,  
where  $I_{\text{mean}}$  and  $I_{\text{rms}}$  are expressed in amps and  $V_{\text{wire}}$  is  
expressed in m/min, are chosen.

17. (new) Process according to Claim 15, wherein the  
workpiece or workpieces to be welded are made of  
stainless steel and the mean current ( $I_{\text{mean}}$ ) value and  
the rms current ( $I_{\text{rms}}$ ) value, such that:

$I_{\text{mean}} = A_1 V_{\text{wire}} + B_1$ , where  $10 < A_1 < 40$  and  $0 < B_1 < 40$  and  
 $I_{\text{rms}} = A_2 V_{\text{wire}} + B_2$ , where  $9 < A_2 < 39$  and  $40 < B_2 < 100$ ,  
where  $I_{\text{mean}}$  and  $I_{\text{rms}}$  are expressed in amps and  $V_{\text{wire}}$  is  
expressed in m/min, are chosen.

18. (new) Process according to Claim 15, wherein the  
workpiece or workpieces to be welded are made of  
aluminum or aluminum alloy and the mean current ( $I_{\text{mean}}$ )  
value and the rms current ( $I_{\text{rms}}$ ) value, such that:

$I_{\text{mean}} = A_1 V_{\text{wire}} + B_1$ , where  $5 < A_1 < 30$  and  $0 < B_1 < 20$  and  
 $I_{\text{rms}} = A_2 V_{\text{wire}} + B_2$ , where  $5 < A_2 < 25$  and  $40 < B_2 < 65$ ,  
where  $I_{\text{mean}}$  and  $I_{\text{rms}}$  are expressed in amps and  $V_{\text{wire}}$  is  
expressed in m/min, are chosen.

19. (new) Process according to Claim 15, wherein the wire feed speed ( $V_{wire}$ ) is between 2 and 15 m/min.
20. (new) Process according to Claim 15, wherein the pulse frequency is between 50 and 200 Hz.
21. (new) Process according to Claim 15, wherein the ratio ( $I_{rms}/I_{mean}$ ) of the rms current ( $I_{rms}$ ) value to the mean current ( $I_{mean}$ ) value is between 1.1 and 1.8.
22. (new) Process according to Claim 15 wherein the workpiece or workpieces to be welded are made of carbon steel and the ratio ( $I_{rms}/I_{mean}$ ) of the rms current ( $I_{rms}$ ) value to the mean current ( $I_{mean}$ ) value is between 1.05 and 2.
23. (new) Process according to Claim 15, wherein the workpiece or workpieces to be welded are made of stainless steel and the ratio ( $I_{rms}/I_{mean}$ ) of the rms current ( $I_{rms}$ ) value to the mean current ( $I_{mean}$ ) value is between 1.05 and 2.
24. (new) Process according to Claim 15 wherein the workpiece or workpieces to be welded are made of

aluminum or aluminum alloy and the ratio ( $I_{rms}/I_{mean}$ ) of the rms current ( $I_{rms}$ ) value to the mean current ( $I_{mean}$ ) value is between 1.05 and 2.

25. (new) Process according to Claim 15, wherein the gas shield consists of a gas or gas mixture selected from the group consisting of helium, argon, carbon dioxide, oxygen, nitrogen and hydrogen and the consumable wire has a diameter of between 0.6 mm and 2.2 mm.
26. (new) Process according to Claim 15 wherein the welding is of the pulsed MIG or pulsed MAG type and the wire is a solid wire or a flux-cored wire.
27. (new) Pulsed arc welding device, capable of implementing a process according to Claim 15, comprising:
  - frequency selection means for setting, adjusting or selecting a pulse frequency;
  - wire speed selection means for setting, adjusting or selecting a wire feed speed ( $V_{wire}$ );
  - means for determining the mean current ( $I_{mean}$ ) and rms current ( $I_{rms}$ ) values making it possible to determine



or calculate ~~at least one~~ mean current  $(I_{mean})$  value and at least one rms current  $(I_{rms})$  value such that:  
 $I_{mean} = A_1 V_{wire} + B_1$ , where  $5 < A_1 < 45$  and  $5 < B_1 < 50$  and  
 $I_{rms} = A_2 V_{wire} + B_2$ , where  $5 < A_2 < 45$  and  $45 < B_2 < 110$ ,  
where  $I_{mean}$  and  $I_{rms}$  are expressed in amps and  $V_{wire}$  is expressed in m/min; and

- current adjustment means for adjusting the welding current in response to the determination or calculation of the mean current  $(I_{mean})$  and rms current  $(I_{rms})$  values by the means for determining the mean current  $(I_{mean})$  and rms current  $(I_{rms})$  values; and
- optionally at least one welding current generator.

28. (new) Welding unit comprising at least one device according to Claim 27, at least one welding torch, at least one source of welding wire and at least one source of shielding gas.